

CLAIMS

1. A semiconductor material having a bipolar transistor structure with a collector layer, base layer and emitter layer, characterized in that the base layer comprises a first layer having a required carrier density, and a second layer having a carrier density that is lower than the carrier density of the first layer.

2. The semiconductor material according to claim 1, wherein the thickness of the second layer is not more than 1000 Å.

3. A semiconductor material having a bipolar transistor structure in which a collector layer, base layer and emitter layer are formed on a semiconductor substrate, characterized in that the base layer comprises a first layer having a required carrier density, and a second layer having a carrier density that is lower than the carrier density of the first layer.

4. The semiconductor material according to claim 3, wherein each of the layers provided on the semiconductor substrate is formed as a thin-film layer.

5. The semiconductor material according to claim 3, wherein the semiconductor substrate is a GaAs substrate or an InP substrate.

6. The semiconductor material according to claim 4, wherein different materials are used to form the emitter layer and base layer, forming a

hetero-junction.

7. A semiconductor device manufactured using the semiconductor material according to any of claims 1 to 6.